

1. The same potential difference is applied to two lamps, *A* and *B*. The resistance of lamp *A* is twice the resistance of lamp *B*. Compared to the power developed by lamp *B*, the power developed by lamp *A* is

1) less                                      3) the same  
2) greater

2. A lamp operates at 10 volts and draws a current of .5 ampere for 60 seconds. What power is developed by the lamp?

1) 5 watts                                      3) 300 watts  
2) 30 watts                                      4) 600 watts

3. Which combination of current and voltage would use energy at the greatest rate?

1) 10 A at 110 V                                      3) 3 A at 220 V  
2) 8 A at 110 V                                      4) 5 A at 110 V

4. Base your answer to the following question on the information below.

An electric heater rated at 4,800 watts is operated on 120 volts.

If the heater were replaced by one having a greater resistance, the amount of heat produced each second would

1) decrease                                      3) remain the same  
2) increase

5. An operating electric iron draws a current of 5 amperes and has a resistance of 20 ohms. The amount of energy used by the iron in 40 seconds is

1)  $1 \times 10^2$  J                                      3)  $4 \times 10^3$  J  
2)  $5 \times 10^2$  J                                      4)  $2 \times 10^4$  J

6. A helium ion with +2 elementary charges is accelerated by a potential difference of  $5.0 \times 10^3$  volts. What is the kinetic energy acquired by the ion?

1)  $32 \times 10^{-19}$  eV                                      3)  $5.0 \times 10^3$  eV  
2) 2.0 eV                                      4)  $1.0 \times 10^4$  eV

7. For which quantities are values needed to calculate the amount of energy supplied to an operating toaster?

1) applied voltage and resistance, only  
2) applied voltage and operation time, only  
3) applied voltage, current drawn, and resistance  
4) applied voltage, current drawn, and operation time

8. If the potential difference applied to a fixed resistance is doubled, the power dissipated by that resistance

1) remains the same                                      3) halves  
2) doubles                                      4) quadruples

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